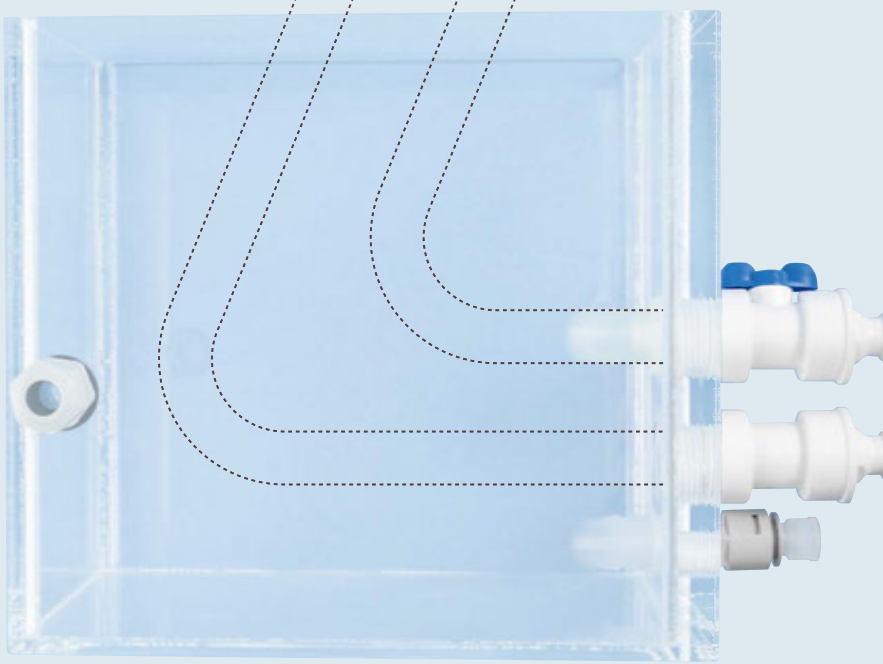
www.heartroid.com/

CE



HEARTROID®

MEDICAL TRAINING SYSTEM

Do practice not on a patient but ...

“HEARTROID”

“HEARTROID” is a catheterization simulator
offering procedural trainig
for interventional cardiologists
and medical students.

X-ray compatible

Practical training under
X-ray fluoroscopy

Fast & Easy preparation

Ready-to-use in just a few
minutes without
any technical knowledge

Portable

Inflight carry-on
baggage compatible

Any situation

In the cath lab, office,
conference hands-on
and anywhere

HEARTROID®PROJECT

MEDICAL TRAINING SYSTEM

HEARTROID®

Contents

CORONARY

HEARTROID coronary series can facilitate many scenarios including simple CAG, PCI, Atherectomy, ACS, CTO, Bifucation strategy and some bail-out procedures under angiography visualized by camera and X-ray fluorosopy.

Basic Set

Product specifications can be customized and are subject to change without notice. Please contact JMC for details.

1. Heart Model for Coronary

A heart model suitable for practical training in CAG and PCI under X-ray fluoroscopy in the cath lab. Stent deployment and guide wire manipulation can be simulated with this model.

2. Special Smart Tank

Compatible with the following heart model

PCI, CTO, BIF, CABG, CAG, Ablation, Myocardial Biopsy Model

3. HEARTROID Pump Type-I

Compatible with the following heart model

PCI, CTO, BIF, CAG, TPVI, EP, Leadless PM, EVT, RDN, Myocardial Biopsy Model

4. Tubes with Sheath
   Number of tubes : 2 (6・8Fr)
5. Lubricant
   1 fl. oz.
   (lasts for 20 coatings)
6. Hoses

▶ See p.24 in details

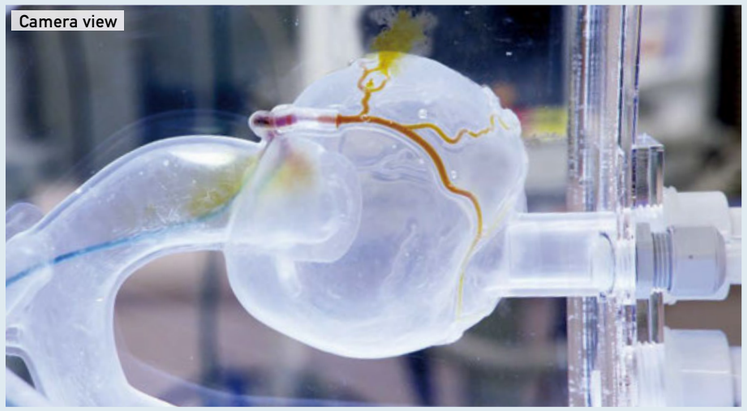
Standard Class

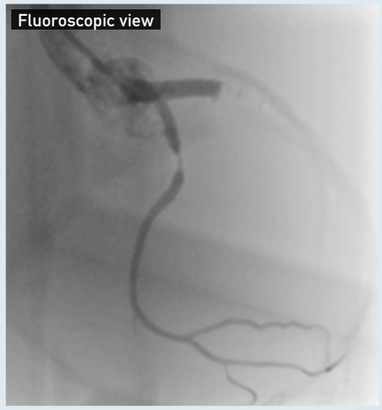
PCI Model

| Compatible Operating procedure |

CAG | CABG | ACS | IVUS / OCT | FFR | Stenting | Rotablation | DCA | Bifurcation | Vascular rupture | CTO

Web

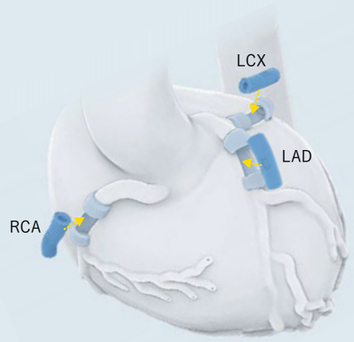




Replaceable “Legion parts” according to the procedures

HEARTROID Coronary series have sockets for attaching “Legion parts”(except for CAG model). You can perform various training by replacing the “Legion parts” according to the purpose.

▶ See p.8 in details

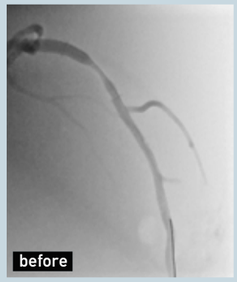


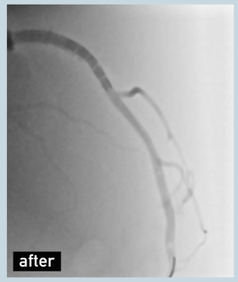
Easy to set up

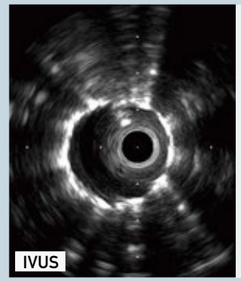
Recommended procedures

Stenting (Simple PCI procedure)

With “Soft Plaque” parts ▶ See p.8



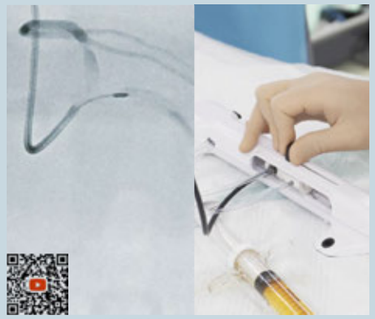




This scenario shows a simple PCI; that is balloon dilatation followed by stent deployment.
Imaging catheters (IVUS, OCT, Angioscopy) and FFR are also applicable. Training under X-ray fluoroscopy is more beneficial.

Atherectomy (Debulking procedures)

With “Concentric Calc” parts ▶ See p.8

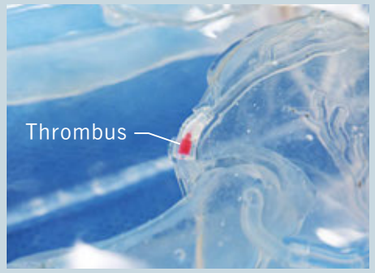


Rotablation with HEARTROID

This scenario allows trainees to understand the strategy behind dealing with various lesions, especially severe calcification. With calcified vessel parts, one can practice the debulking technique with Rotablator and Directional Coronary Atherectomy (DCA) devices. Training under X-ray fluoroscopy is more beneficial.

ACS (Thrombectomy, balloon and stenting)

With “ACS” parts ▶ See p.8



This scenario facilitates emergent PCI strategy including thrombectomy followed by balloon dilatation and stent deployment. In successful case, you can see some thrombus in a syringe along with a nice final angiography.

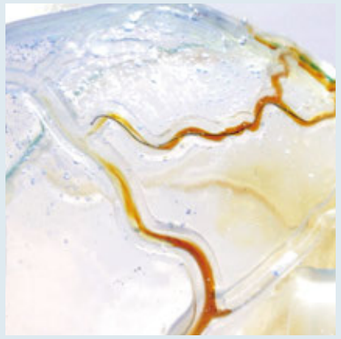
High-end Class

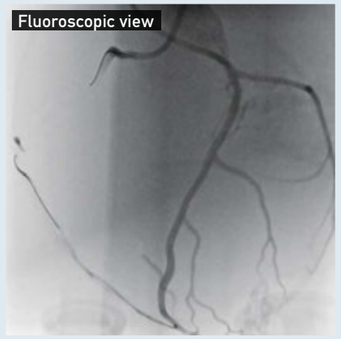
CTO Model

I Compatible Operating procedure I

CAG | CABG | ACS | IVUS / OCT | FFR | Stenting
Rotablation | DCA | Bifurcation | Vascular rupture | CTO

Web

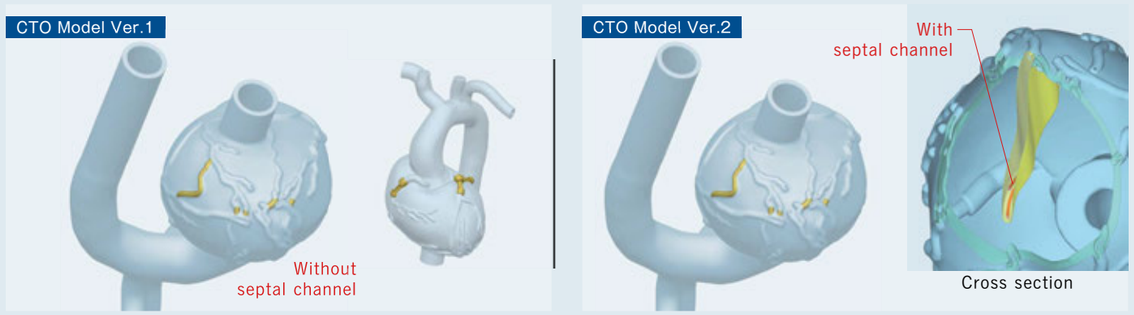




This is a chronic total occlusion (CTO) disease model. It features multiple collateral channels between LAD and RCA (including septal branch and apex routes), and between LCX and RCA (including AV groove and apex routes). The LAD, LCX and RCA have their own pockets, so that if the CTO vessel part is set in the RCA pocket, both the antegrade approach from RCA and the retrograde approach from LAD can be simulated, and vice versa.

With “CTO” parts ▶ See p.8

CTO Model lineup



See p.8 in details

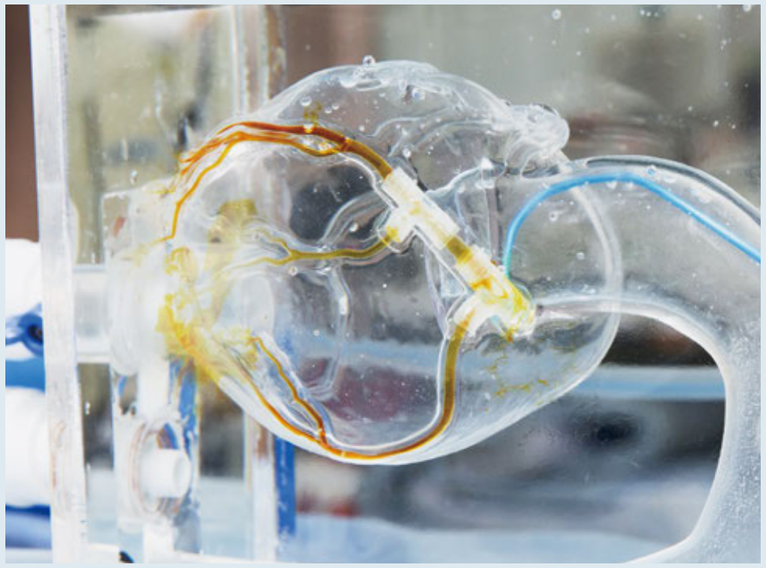
High-end Class

BIF Model

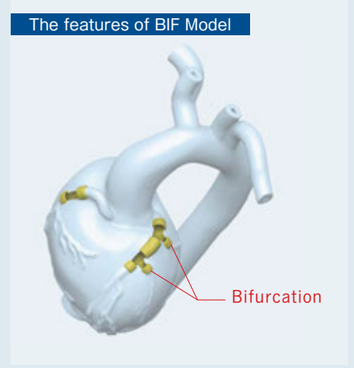
I Compatible Operating procedure I

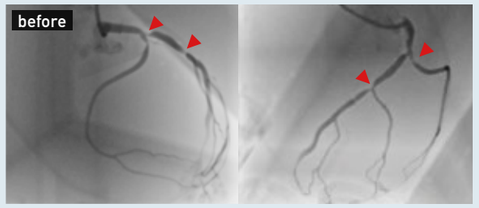
CAG | CABG | ACS | IVUS / OCT | FFR | Stenting
Rotablation | DCA | Bifurcation | Vascular rupture | CTO

Web

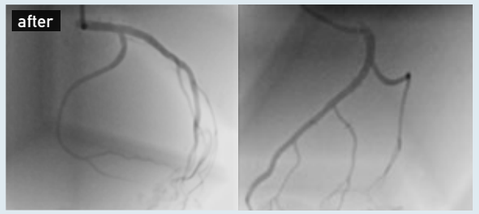


BIF model can facilitates the full procedures around LM (left main) bifurcation and LAD–Dx (diagonal branch) bifucarion strategies. Let’s try T-stenting, Culotte, Crush, KBT and whatever you want!

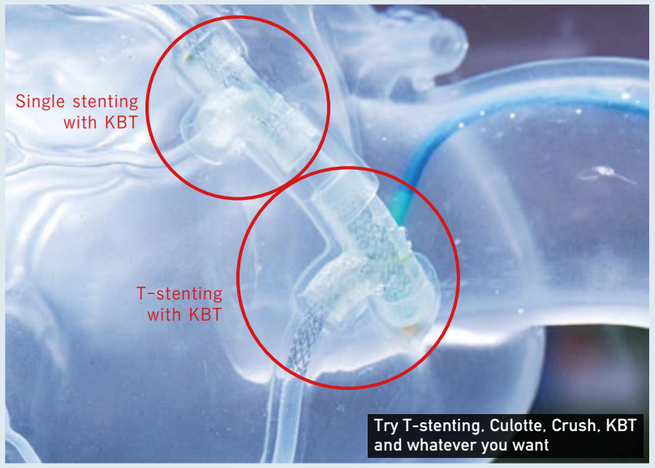




RAO CAU LAO CRA

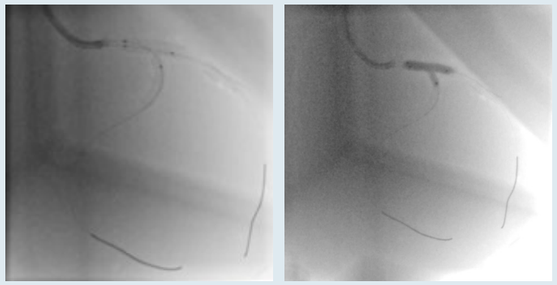


RAO CAU LAO CRA

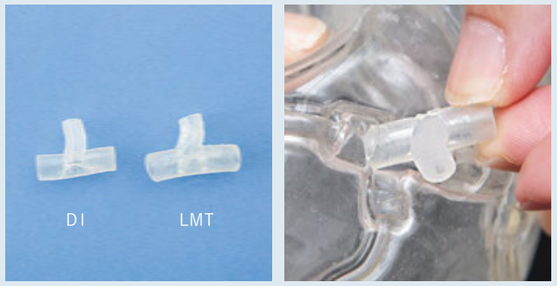


KBT (Kissing balloon technique)

KBT & POT
with HEARTROID



BIF legion parts (detachable & disporsable)



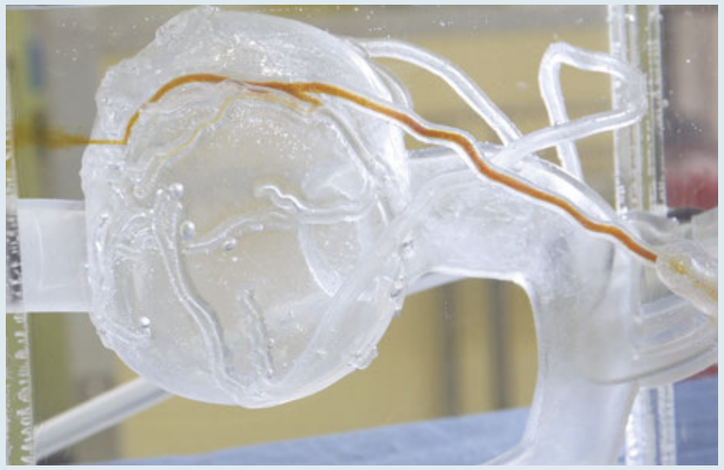
High-end Class

CABG Model

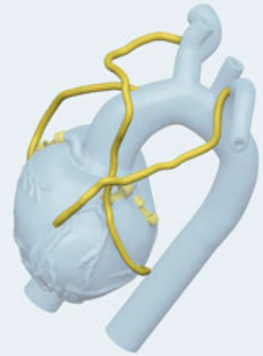
I Compatible Operating procedure I

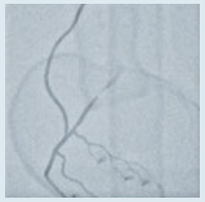
CAG	CABG	ACS	IVUS / OCT	FFR	Stenting
Rotablation	DCA	Bifurcation	Vascular rupture	CTO	

Web



The features of CABG Model





This is a triple vessel disease model with a triple coronary artery bypass grafting (CABG) : LITA-mid LAD, RITA-LCX OM branch, and distal RCA. The native coronary artery has a severe stenosis in the proximal LAD, a severe stenosis in the proximal LCX, and also a severe stenosis in the mid RCA. This model is suitable for bypass graft angiography and PCI simulation for cases involving CABG.

Entry Class

CAG Model

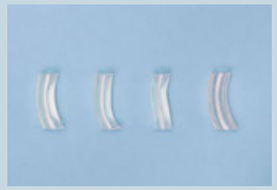
I Compatible Operating procedure I

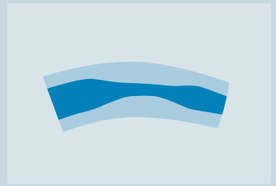
CAG	CABG	ACS	IVUS / OCT	FFR	Stenting
Rotablation	DCA	Bifurcation	Vascular rupture	CTO	

Web

This system facilitates full procedures necessary in CAG (coronary angiography). It allows trainees to understand how to manipulate catheters, guidewires and contrast injectionunder camera and X-ray fluoroscopic view. Both transfemoral and transradial approach compatible. This entry model is suitable for young cardiologists, medical students and cath lab staffs' team simulation.

Legion parts (detachable & disporsable)





Soft plaque

75% stenosis with soft plaque suitable for direct stenting.

Concentric Calc

75% stenosis with concentric calcification suitable for rotablation.

DCA

75% stenosis with eccentric calcification suitable for directional coronary atherectomy.

Perforation

For bail-out scenario "Coronary Perforation"

ACS

100% total occlusion easy to pass

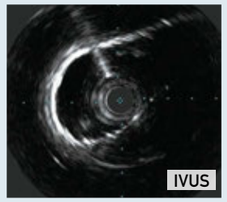
CTO

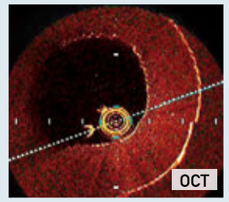
Compatible with CTO Models only

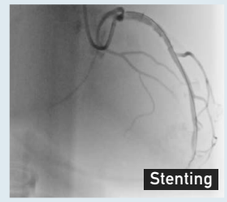
100% total occlusion. (Hardness: level I to 5)

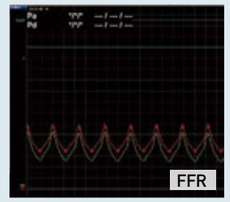
Compatible procedures

Class	Entry	Standard	High-end		
Model	CAG	PCI	CABG	CTO	BIF
Coronary angiography (CAG)	○	○	○	○	○
PCI/CAG for CABG			○		
Thrombectomy for ACS		○	○	○	
IVUS / OCT imaging		○	○	○	○
Fractal Flow Reserve (FFR)		○	○	○	○
Stent deployment		○	○	○	○
Atherectomy (Rotablation/OA)		○	○	○	○
Directional coronary atherectomy (DCA)					○
Bifurcation procedure KBT/Culotte & Crush stenting					○
Coronary rupture bail-out		○	○	○	
Coiling for coronary perforation	○	○	○	○	○
Chronic total occlusion (CTO)				○	









TAVI Model

Web

Basic Set

Product specifications can be customized and are subject to change without notice. Please contact JMC for details.

1. Heart Model for TAVI
Heart model suitable for practical training in TAVI under X-ray fluoroscopy in the cath lab.

2. Valve parts
One of the valves shown below is included. (Aortic Regurgitation Valve)

3. Special Tank for TAVI

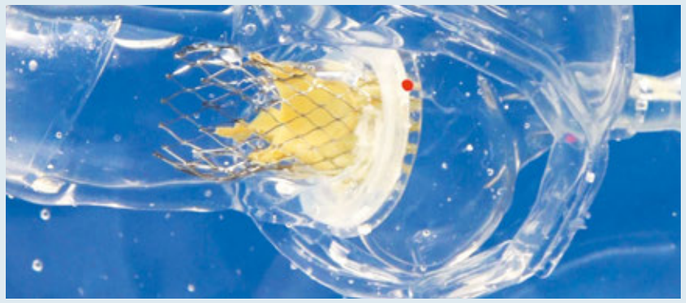
4. HEARTROID Pump Type-II
Compatible with the following heart model
TAVI, MV, TPVI Model

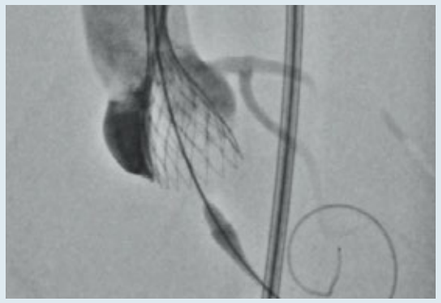
5. Tubes with Sheath
Number of tubes : 2 (6·24Fr)

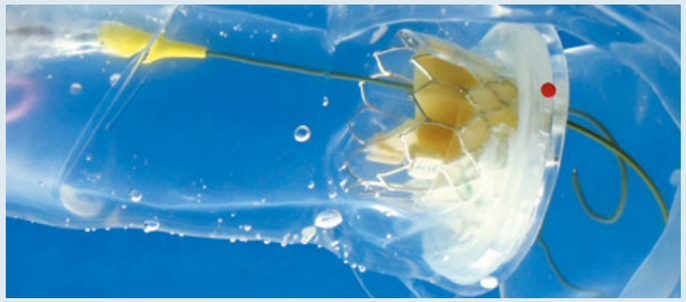
6. Lubricant
1 fl. oz.
(lasts for 20 coatings)

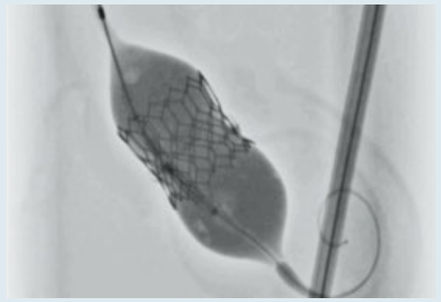
7. Hoses

▶ See p.24 in details









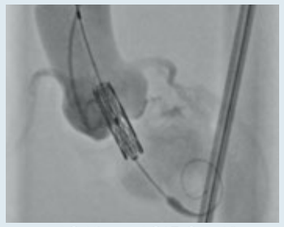
HEARTROID TAVI model facilitates technical training for TAVI (Transcatheter Aortic Valve Implantation), a novel therapy for aortic valve stenosis. With a pulsatile pump included in the set, stent valve deployment under blood flow can be verified by simultaneous aortography. This system is appropriate for both balloon-expandable and self-expandable transcatheter stent valves. It is also applicable to both the TF and TA approach. It can be used under various circumstances, from hands-on seminars at an exhibition booth to simulation under X-ray fluoroscopy in the cath lab. The detachable aortic valve part enables quick preparation and effective training.

Valve implantation

* Recommended angles are for TAVI model 37°

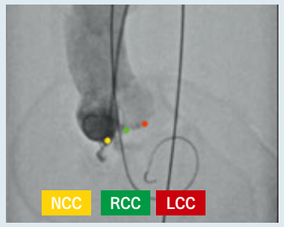
Cusp Overlap Technique with HEARTROID

LAO Technique

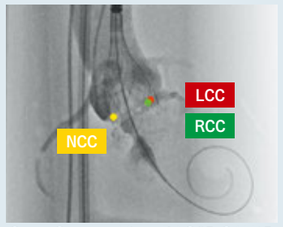


LAO View LAO17 CAU10

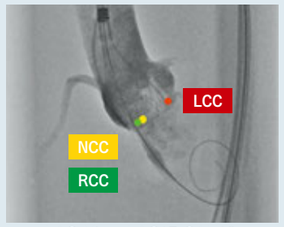
Cusp Overlap Techniquie



Native Coplanar View AP CAU10



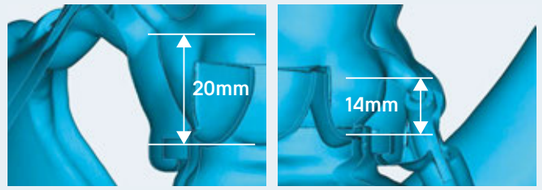
Cusp Overlap View RAO25 CAU15



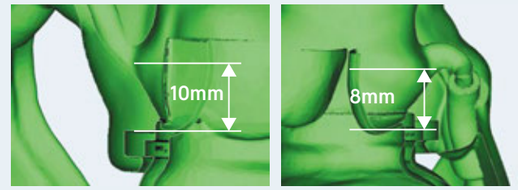
LAO View LAO17 CAU10

Coronary Height Variety

Normal Position RCA 20mm LCA 14mm (Type1)

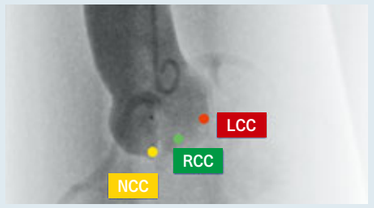


Lower Position RCA 10mm LCA 8mm (Type2)



Valve parts (detachable)

Aortic Stenosis Valve

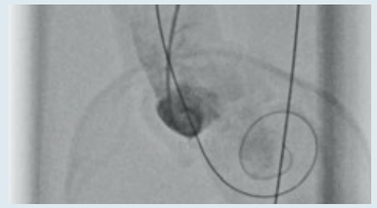


A detachable aortic valve with severe calcification.

Bicuspid Aortic Valve

A detachable aortic valve with raphe.

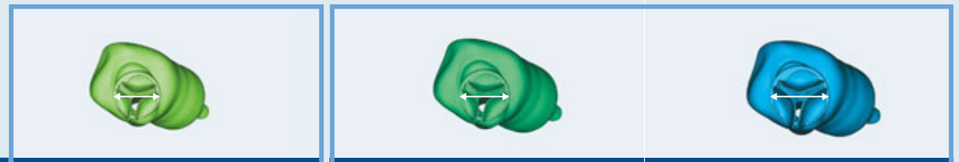
Aortic Regurgitation Valve



A detachable aortic valve without calcification.

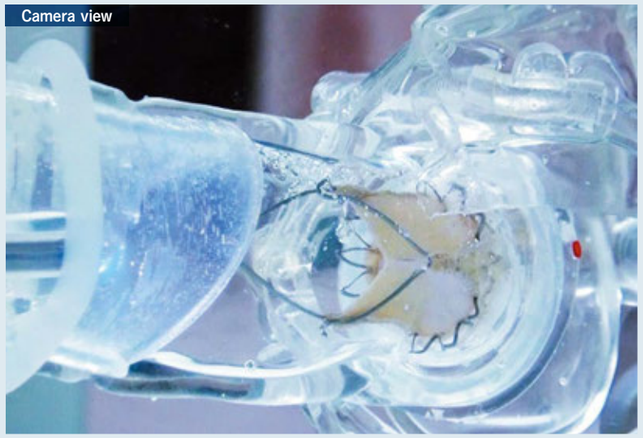
Aortic Valve variety

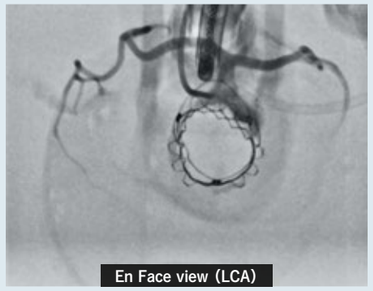
* Φ19 mm module is compatible only with the type 2 design of the heart body module

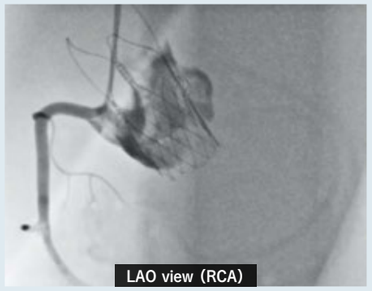


Aortic Annulus	19 mm	22 mm	25 mm
Heart body	Type 2	Type I	Type I

TAVI Videoscope Model (For Coronary access)



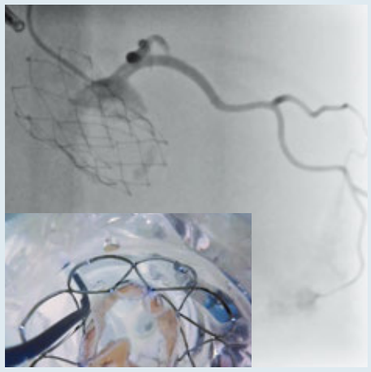




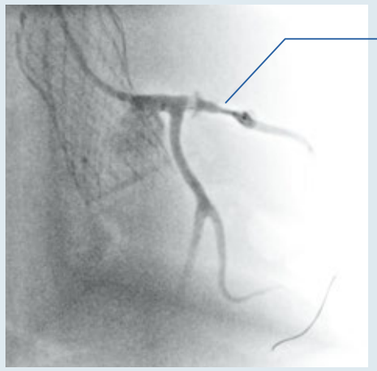
TAVI Videoscope Model can facilitate coronary access simulation training with a videoscope showing En Face view. This system can help interventional cardioplogists understand the catheter manipulation when coronary access is needed for post-TAVI patients. With X-ray furuoroscopy, one can compare the routine AP or LAO view and En Face view as shown above.

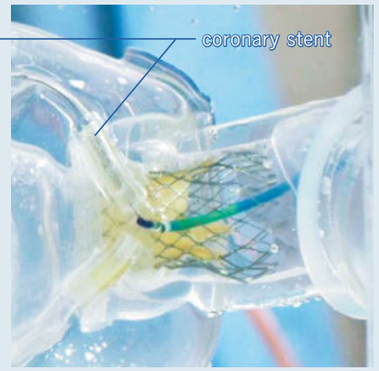
Coronary access & Post-TAVI PCI

Coronary access



Post-TAVI PCI

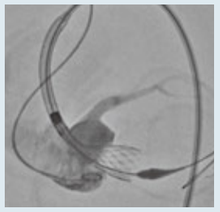


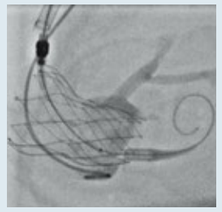


Judkins catheter with guide-extention cathter

TAVI Horizontal Model

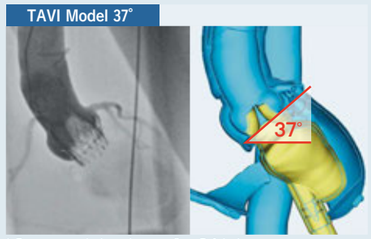
Web



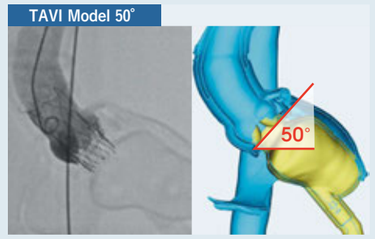


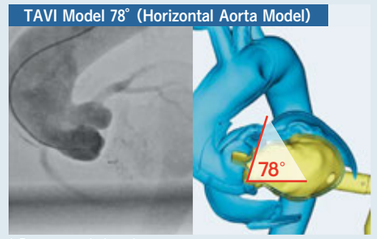
Horizontal aortic root anatomy causes difficuty in the valve positioning and delivery system retrieval process in TAVI procedure. This model has increased aortic angulation of 78˚ as measured between plane of aortic valve annulus and horizontal plane.

Aortic Anatomy variety



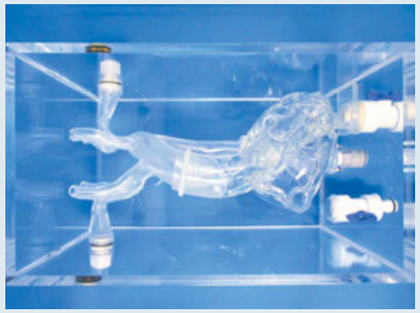
* Recommended angles → See P.9 below





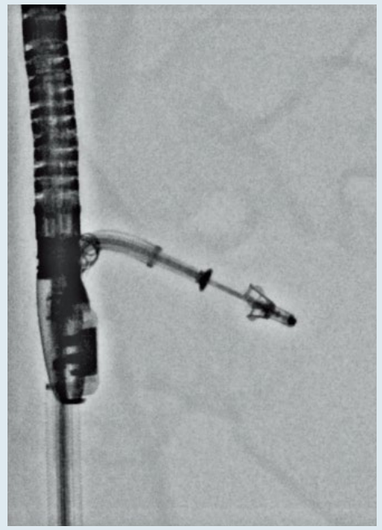
* Recommended angles
Coplanar view : LAO9 CAU19
Cusp Overlap View : RAO7 CAU44

TAVI Cardiocranial Model (For Cerebral protection)

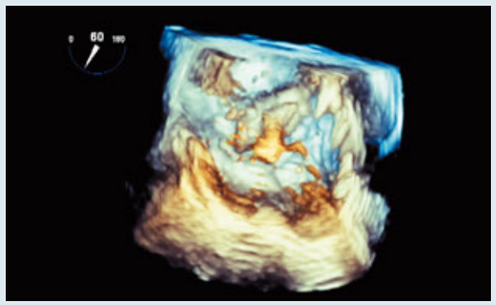


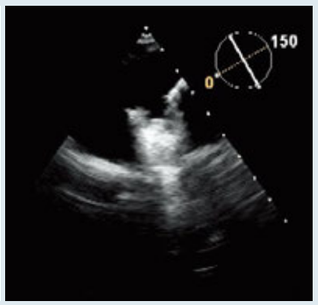
This model can facilitate the following series of simulation including 1. Cerebral embolic protection, 2. TAVI Valve implantation, 3. Post-TAVI coronary access & PCI (including pre-TAVI coronary protection) under X-ray fluoroscoy and camera view.

MV Model



This model can facilitate mitral clipping procedure, which means percutaneous mitral valve repair using the edge-to-edge technique. Detachable mitral valve repeats an opening-closing cycle at a designated heart rate through the pulsatile flow generated by the specialized pump. There are two types of models which can be used under X-ray fluoroscopy; one is designed for implementing the procedure with TEE and the other is designed for camera view use.





Basic Set

Product specifications can be customized and are subject to change without notice. Please contact JMC for details.

1. Heart model for MV
An esophagus is attached to this heart model. The size and location of the MV can be changed upon request.

2. Special Wide Tank For TEE
A special tank for inserting the TEE probe. Compatible with the following heart model.

MV

3. HEARTROID Pump Type-II
Compatible with the following heart model

TAVI, MV, TPVI Model

4. Tube with Sheath
Number of tubes : 1 (24Fr)

5. Lubricant
1 fl. oz.
(lasts for 20 coatings)

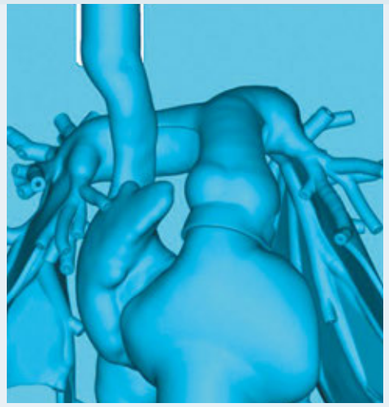
6. Hoses

▶ See p.24 in details

TPVI Model

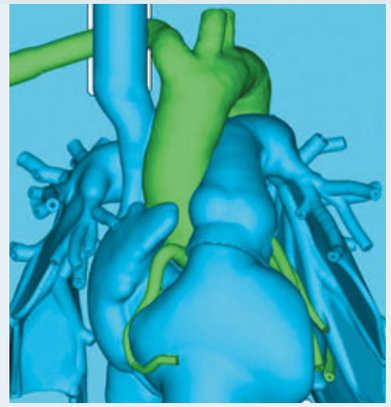
This model can facilitate TPVI (Transcatheter Pulmonary Valve Implantation) simulation training. Hybrid design, soft heart model with main pulmonary artery is connected with peripheral pulmonary arteries, realize a real tactile feeling during the procedure and sooth valve removal process after implantation. There are two types of models which can be used under X-ray fluoroscopy; type1 (for balloon-expandable valve implantation) is equipped with aorta and coronary arteries and type2 is suitable for self-expandable valve.

Type1



Type2 for self-expandable valve

Type2



Type1 for balloon-expandable valve

Basic Set

Product specifications can be customized and are subject to change without notice. Please contact JMC for details.

1. Heart model for TPVI
An esophagus is attached to this heart model. The size and location of the TPVI can be changed upon request.

2. Special Tank for TPVI Type2

3. HEARTROID Pump Type-I
HEARTROID Pump Type-II

4. Tube with Sheath
Number of tubes : 1 (24Fr)

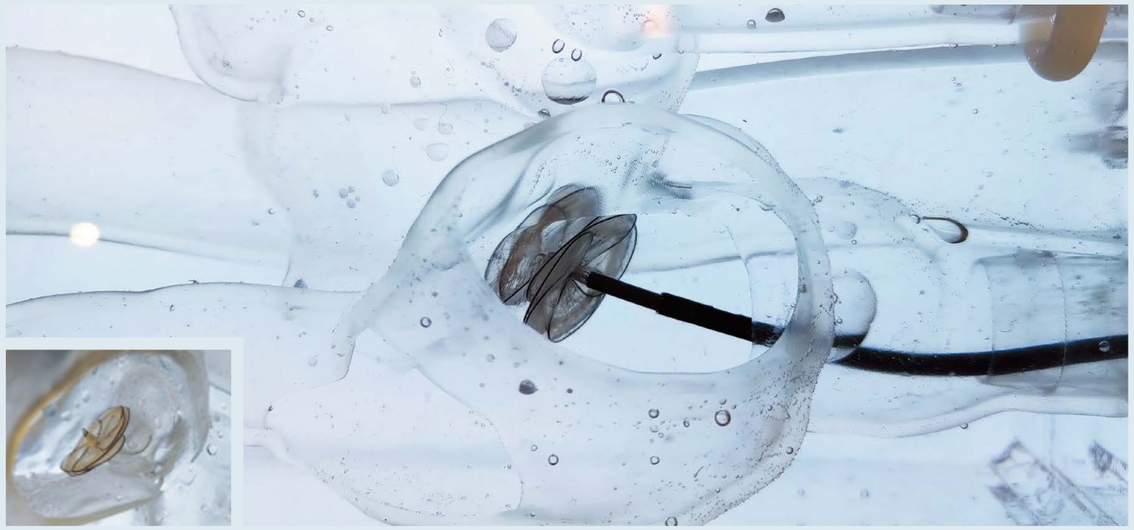
5. Lubricant
1 fl. oz.
(lasts for 20 coatings)

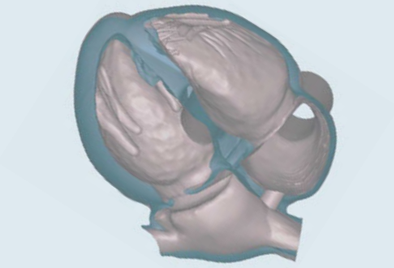
6. Hoses

▶ See p.24 in details

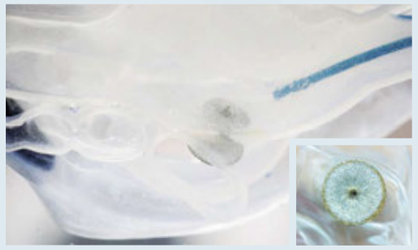
ASD/PFO closure

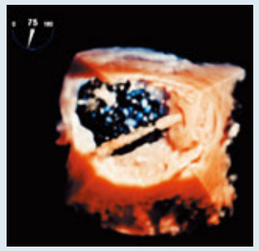
Web

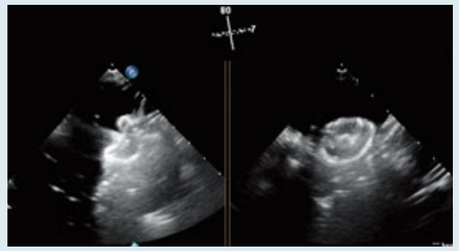




HEARTROID ASD closure model facilitates training for the ASD (atrial septal defect) closure procedure, a catheter-based operation for patients with congenital defects of the atrial septum. Guided by echocardiography, a delivery catheter can be inserted through the septal defect into the left atrium, and the closure device can be deployed across the ASD. As blood flow from the left atrium to the left ventricle is simulated, the location of the occluder can be confirmed by X-ray fluoroscopy during the procedure.







Basic Set

Product specifications can be customized and are subject to change without notice. Please contact JMC for details.

1. Heart model for ASD Closure

An esophagus is attached to this heart model. The size and location of the ASD can be changed upon request.

2. Special Wide Tank For TEE

A special tank for inserting the TEE probe. Compatible with the following heart model.

ASD Closure、LAA Closure

3. HEARTROID Pump Type-I

Compatible with the following heart model

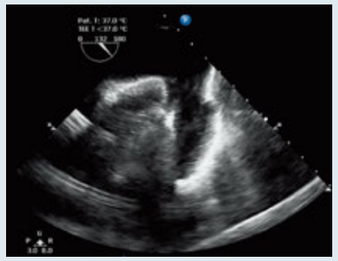
PCI, CTO, BIF, CAG, TPVI, EP, Leadless PM, EVT, RDN, Myocardial Biopsy Model

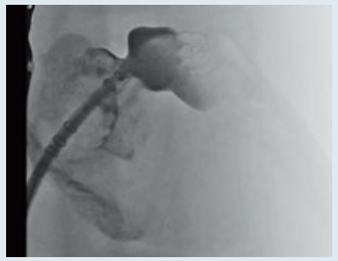
4. Tube with Sheath
   Number of tubes : I (24Fr)
5. Lubricant
   I fl. oz.
   (lasts for 20 coatings)
6. Hoses

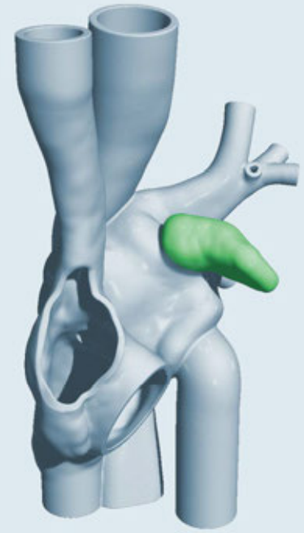
▶ See p.24 in details

LAA Closure Model

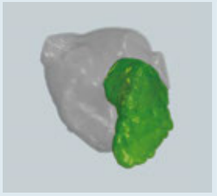
Web



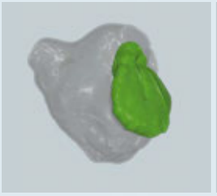




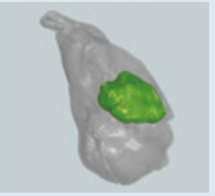
HEARTROID LAA closure model facilitates training for the LAA (left atrial appendage) closure procedure, a catheter-based operation for patients at risk of stroke due to atrial fibrillation. Guided by echocardiography, the delivery catheter can be inserted through the atrial septum and the occluder can be deployed in the LAA. Blood flow from the left atrium to the left ventricle is simulated, so the location of the occluder can be confirmed by X-ray fluoroscopy during the procedure.



Wind Sock model



Chicken Wing model



Broccoli model

Basic Set

Product specifications can be customized and are subject to change without notice. Please contact JMC for details.

1. Heart model for LAA Closure

The basic set includes a heart model with a wind sock type LAA. An esophagus is attached to this heart model. Major LAA types (wind sock, chicken wing, and broccoli) can be selected upon request.

2. Special Wide Tank For TEE

A special tank for inserting the TEE probe. Compatible with the following heart model.

LAA Closure、ASD Closure

3. HEARTROID Pump Type-I

Compatible with the following heart model

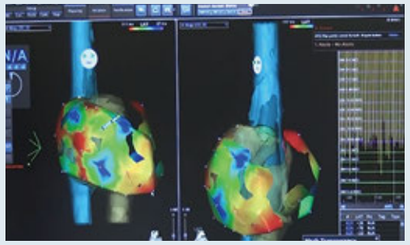
PCI, CTO, BIF, CAG, TPVI, EP, Leadless PM, EVT, RDN, Myocardial Biopsy Model

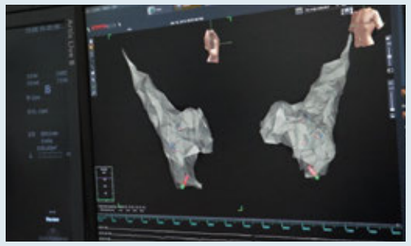
4. Tube with Sheath
   Number of tubes : I (24Fr)
5. Lubricant
   I fl. oz.
   (lasts for 20 coatings)
6. Hoses

▶ See p.24 in details

EP Model

Web

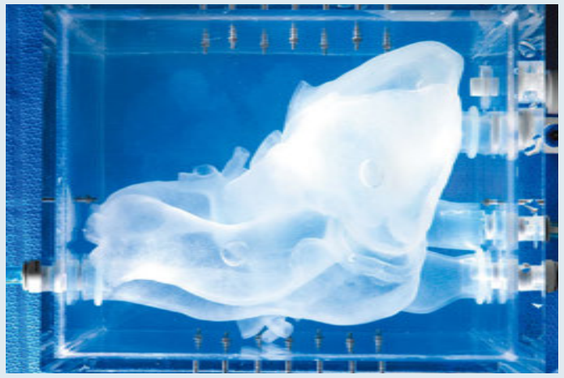




HEARTROID Ablation model facilitates technical training for catheter manipulation and 3D mapping, which are basic skills required for catheter ablation. With this model, the Brockenbrough Method (atrial septal puncture) guided by ICE (intracardiac echocardiography) can also be simulated. The model is appropriate for both the internal jugular and femoral vein approach.

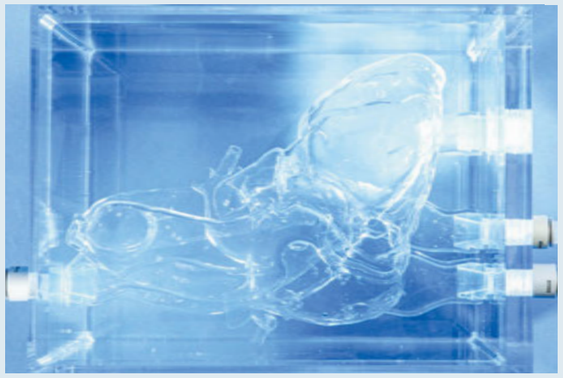
Material

Hydrogel series



For Electromagnetic field and ICE imaging

Silicon series



For camera view

Basic Set

Product specifications can be customized and are subject to change without notice. Please contact JMC for details.

Hydrogel

1. Heart Model for EP

Heart model suitable for EP training in TAVI under X-ray fluoroscopy in the cath lab.

2. Special Tank for EP

Silicon

1. Heart Model for EP

2. Special wide Tank

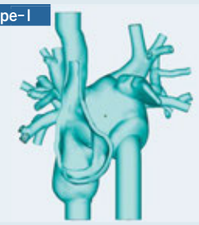
3. HEARTROID Pump Type-I
4. Tubes with Sheath
   Number of tubes :
   1 (24Fr o r16Fr)
5. Lubricant
   1 fl. oz.
   (lasts for 20 coatings)
6. Hoses

▶ **See p.24 in details**

Geometry

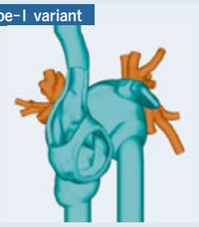
Model size can be magnified or reduce depending your request.

Type-I



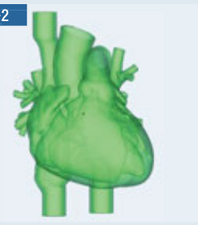
2-chamber design
RA and LA with SVC, IVC

Type-I variant



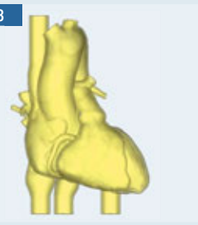
2-chamber design
Right PV : common trunk
Left PV : trifurcation

Type-2



4-chamber design
RA, LA, RV, LV with SVC, IVC

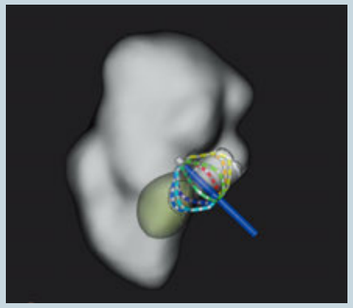
Type-3

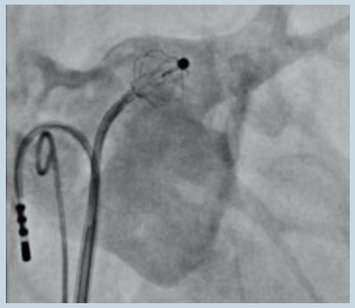


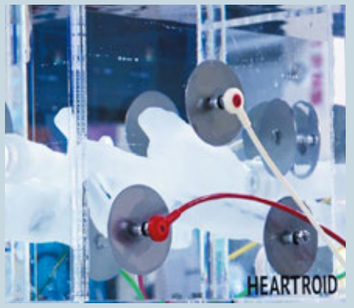
4-chamber design
with retrograde (arterial) and venous approach

Recommended procedures

3D mapping (Geometry Creation)



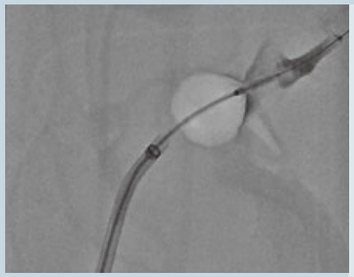




Hydrogel heart model with conductive property can facilitate the simulation of geometry creation process, which is the fundamental procedure for electrophysiologists. Type1 and 2 are designed to be accessed from IVC through atrial septum, and retrograde approach from the femoral artery is acceptable with Type3.

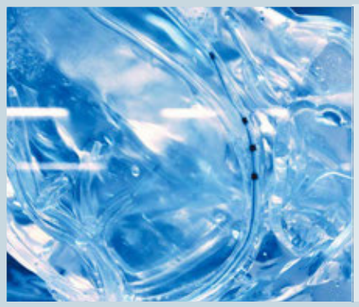
Recommended procedures

PVI (Cryoballoon ablation)



HEARTROID PVI model facilitates simulated training of a pulmonary vein isolation procedure, with or without X-ray visualization. During cryoballoon catheter ablation, the operator is able to check whether pulmonary vein flow is blocked appropriately using a pulsatile pump which included in the standard set. This model features all four pulmonary veins (RSPV, RIPV, LSPV, LIPV), and ICE (intracardiac echocardiography) is usable when passing through the atrial septum.

Lead implantation for coronary sinus and branches



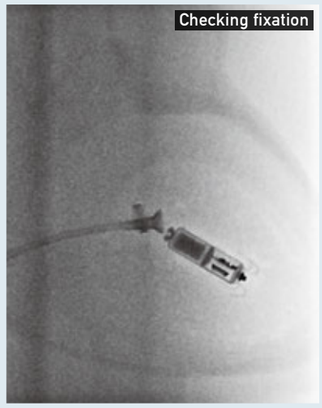
Silicon-based transparent heart model with CS (coronary sinus) facilitates the lead implantation procedure under X-ray fluoroscopy and camera view. Coronary sinus and marginal veins can be visualized with contrast injection.

Compatible procedures

	Type1		Type2		Type3	
	2-ch		4-ch		venous and arterial approach	
	Silicon	Hydrogel	Silicon	Hydrogel	Silicon	Hydrogel
3D mapping (geometry creation)		✓		✓		✓
ICE imaging				✓		✓
PVI with cryoballoon	✓					
Lead implantation for coronary sinus and branches			✓		✓	

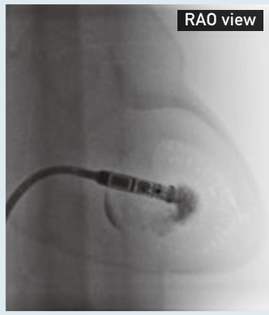
Leadless PM Model

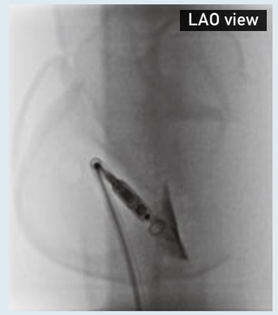
Web

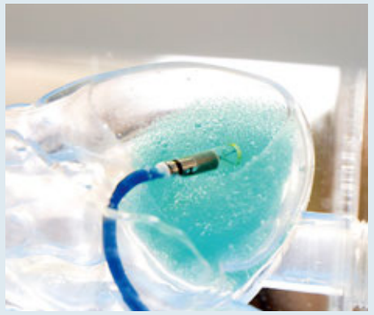


HEARTROID Leadless PM model facilitates simulated training of a leadless pacemaker device implantation procedure, with or without X-ray visualization. The operator is able to simulate full procedure; inserting a delivery catheter from femoral vein via right atrium into right ventricle, confirming the position of the device on the right ventricular septum with contrast under X-ray and deployemnt followed by checking fixation process.

Leadless PM implantation with HEARTROID







Basic Set

Product specifications can be customized and are subject to change without notice. Please contact JMC for details.

1. Leadless PM Model

2. Special Wide Tank

3. HEARTROID Pump Type-I
Compatible with the following heart model

PCI, CTO, BIF, CAG, TPVI, EP, Leadless PM, EVT, RDN, Myocardial Biopsy Model

4. Tube with Sheath
Number of tubes : I (24Fr)

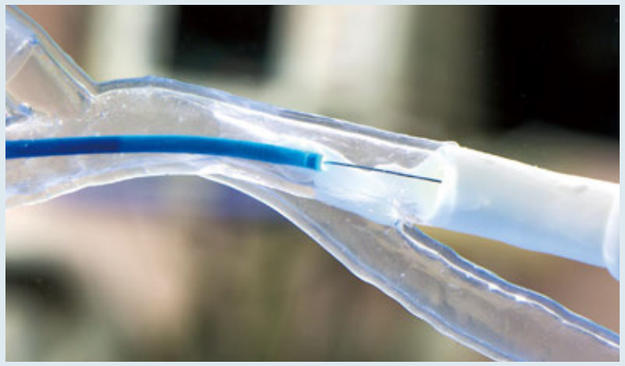
5. Lubricant
I fl. oz.
(lasts for 20 coatings)

6. Hoses

▶ See p.24 in details

EVT Model

Web

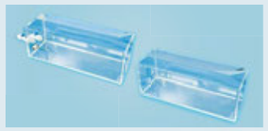


Basic Set

Product specifications can be customized and are subject to change without notice. Please contact JMC for details.

1. EVT Model

Peripheral vessel model. Major arteries from terminal aorta to plantar arch with some pockets capable of setting removable legion parts.



2. Special Tank for EVT

Tank provides excellent visibility under X-ray fluoroscopy and non-fluoroscopic situation. Divided construction allows above-knee-specific procedures from iliac to popliteal artery.

3. HEARTROID Pump Type-I

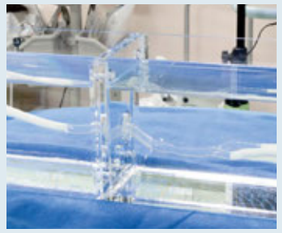
Compatible with the following heart model

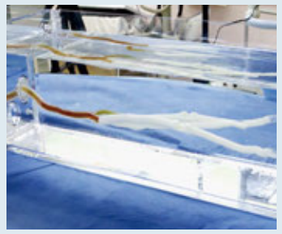
PCI, CTO, BIF, CAG, TPVI, EP, Leadless PM, EVT, RDN, Myocardial Biopsy Model

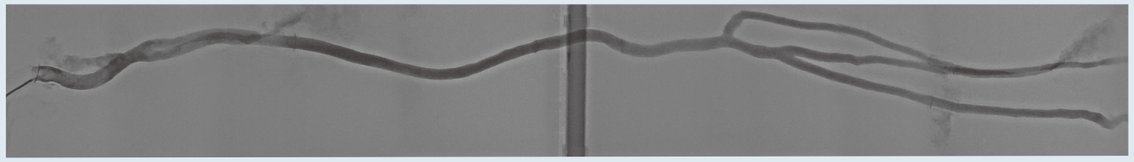
4. Tubes with Sheath
   Number of tubes : 2 (8Fr)
5. Lubricant
   1 fl. oz.
   (lasts for 20 coatings)
6. Hoses

▶ See p.24 in details

HEARTROID EVT model facilitates simulation for peripheral intervention procedures under X-ray fluoroscopy and non-fluoroscopic situation. This vessel model covers from the terminal aorta to the plantar arch, and supports both retrograde and antegrade approaches. Similar to the HEARTROID coronary artery model, this system can incorporate sections of stenosis, total occlusion and severe calcification, thus allowing procedures of various cases such as stent deployment and debulking procedures. The tank can be divided between the above-knee area (AK) and the below-knee area (BK) for easy setup.







RDN Model

Web

Basic Set

Product specifications can be customized and are subject to change without notice. Please contact JMC for details.

1. Vessel Model for RDN

The model is primarily designed for RDN (renal denervation). Vessel model can be customized depending on the purpose of use, along with the special tank.

2. Special Tank for RDN

Transparent tank that provides high visibility for catheter use simulation with or without X-ray fluoroscopy. No more than six liters of water are required for training.

3. HEARTROID Pump Type-I

Compatible with the following heart model

PCI, CTO, BIF, CAG, TPVI, EP, Leadless PM, EVT, RDN, Myocardial Biopsy Model

4. Tubes with Sheath
   Number of tubes : 2 (8Fr)
5. Lubricant
   1 fl. oz.
   (lasts for 20 coatings)
6. Hoses

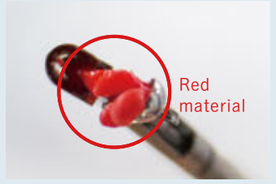
▶ See p.24 in details

HEARTROID RDN model allows trainees to understand how to manipulate catheters during RDN (renal denervation) procedure with or without X-ray fluoroscopy.
With a pulsatile pump included in the set, blood flow from the aorta to the extremity can be simulated and verified by realistic angiographic imaging. We offer steeply angled renal branches, along with further customization depending on usage.

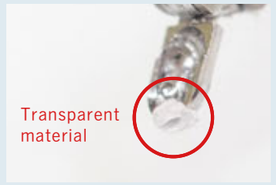
Myocardial Biopsy Model

Web

With this model, the myocardial biopsy procedure can be simulated under X-ray fluoroscopy, similar to the set-up in a real cath lab. The transparent heart model enables one to practice the procedure by confirming the direction of the sheath and forceps through both an X-ray image and a camera image.



Tissue removed from the ventricular septum.



Tissue removed from the ventricular free wall, not the ventricular septum.

As the material used to simulate the ventricular septum is different from that of the ventricular free wall, it is easy to confirm whether the tissue was removed from the appropriate area after the procedure. Using the X-ray image, it is possible to determine if the forceps are facing towards the free wall. The compact camera with a flexible arm can provide a clear image from various angles.

Basic Set

Product specifications can be customized and are subject to change without notice. Please contact JMC for details.

1. Heart Model for Myocardial Biopsy

The heart shape is designed based on the Four-Chamber Model. The septal part can be replaced. Please contact JMC for details.

2. Special Smart Tank

Compatible with the following heart model

PCI、CTO、BIF、CABG、CAG、Ablation

3. HEARTROID Pump Type-I

Compatible with the following heart model

PCI, CTO, BIF, CAG, TPVI, EP, Leadless PM, EVT, RDN, Myocardial Biopsy Model

4. Tubes with Sheath
5. Lubricant
   1 fl. oz.
   (lasts for 20 coatings)
6. Hoses

▶ See p.24 in details

HEARTROID System

"HEARTROID" is a training system with a heart model and a pulsatile pump for interventional cardiologists and medical students. This system offers clear angiographic images under X-ray fluoroscopy in the Cath lab, with a short prep time of only three minutes.

Heart model + Special Tank + Pulsatile Pump

Just pour water the tank and connect with the Heart model

Basic Set

Heart model

A 3D-printed models to practice coronary, structual, peripheral and ablation procedures. Ability to customize as needed.

Special Tank

Transparent tank that provides high visibility for catheter use simulation with or without X-ray fluoroscopy. No more than six liters of water are required for training.

Pulsatile Pump

Our uniquely-developed pulsatile pump can be set by 30-120 bpm (1200-4800ml/min in flow volume.). Realistic coronary images are obtained by particular patterns of the cylinder movement.

Sheath

Special tubes with sheath.

Lubricant

Special lubricant for coating the inner surface of the heart model.
1 fl. oz. (lasts for 20 coatings)

Hoses

Hose with one-touch joint.

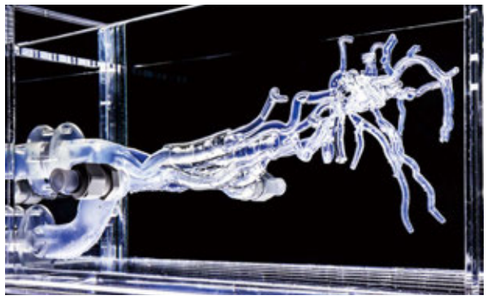
HEARTROID® NV

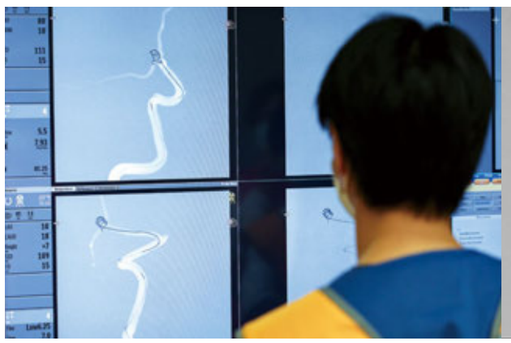
HEARTROID NV is the first neurovascular model as HEARTROID brand, which has a lot of experience in cardiac catheterization simulators.
This model realistically reproduces the tactile feeling of catheter operation as well as the way it looks under X-ray fluoroscopy by making the most of our technology accumulated to date.
The HEARTROID NV is ideal for physicians seeking to improve their skills through simulation training and for sharing the procedures with brand-new devices.

Webサイト

All-in-one catheterization simulator for neurovascular interventional procedures

By reproducing blood flow with a dedicated pulsating pump, cerebral angiography can be performed under as in actual clinical practice. This transparent vascular model created by using a 3D-printing technology allows us to directly observe the behavior of the devices such as embolic coils for cerebral aneurysms and stent retrievers for thrombus retrieval in stroke cases. The system enables effective simulation training by monitoring both direct visual images and X-ray fluoroscopic images, which cannot be realized in actual clinical practices.





Cerebral angiography can be performed with contrast under X-ray fluoroscopy

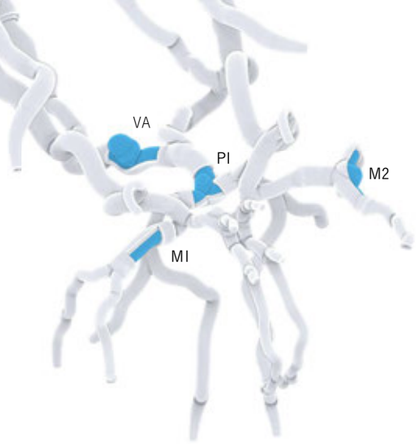
Before thrombus retrieval

Successful microcatheter delivery

After thrombus retrieval

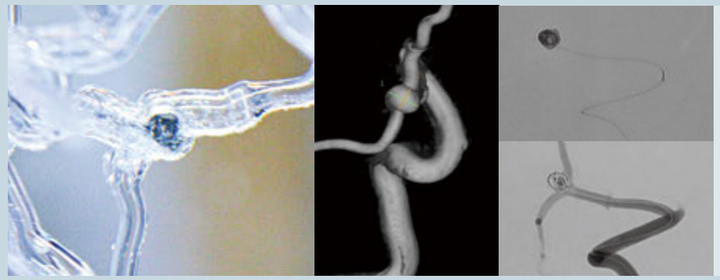
Lesion parts can realize various scenarios

NV model platform has a pocket for attaching "lesion parts".
Various scenarios for simulation training can be implemented by replacing the "lesion parts" depending on your purpose.



Recommended procedures

Coil embolization

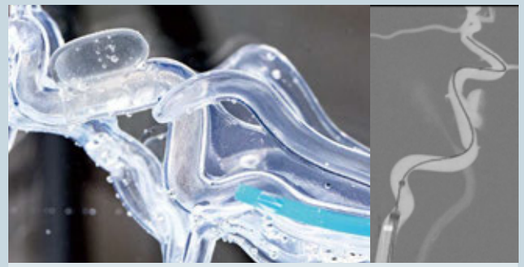


As in actual clinical practices, cerebral angiography in DSA mode can be performed, and using this image as a reference, the catheter can be delivered to the lesion and an embolic coil can be implanted in the aneurysm. This procedure can be repeated over and over again by replacing the aneurysmal lesion parts.

Thrombectomy

As in actual clinical practice, a series of procedures can be performed from delivery of the stent retriever to thrombus retrieval while performing cerebral angiography. The procedure can be repeated by replacing the disposable thrombus lesion parts.

Flow-diverter deployment



A removable aneurysm (ϕ15 mm) is available for simulation training on the Flow-diverter system, a new treatment method for large cerebral aneurysms. The morphology and the size of aneurysms are customizable.

Basic Set

1. NV Model

The transparent vessels allow for the catheter procedure simulation by comparing the X-ray-fluoroscopic image with the direct view from the camera.

2. Smart tank for NV

3. Pulsatile Pump

4. Tubes with Sheath
Number of tubes : 3 (10Fr)

5. Lubricant
1 fl. oz.
(lasts for 20 coatings)

6. Hoses

Options and Accessories

Camera Set

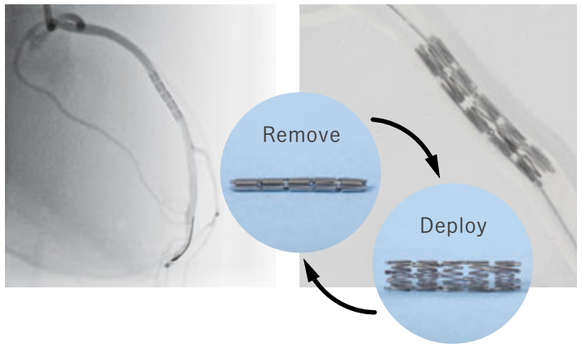
A compact camera with a flexible arm that can provide clear images from various angles.
Via the flexible arm, observation from various angles can be performed.
Simple connection with a camera and monitor, a clear image can be attained.

Carrying case customized for HEARTROID NV.

Total Outer Size:
H66.5× W49.5× D29cm
Capable of containing the basic set and special table.

Options and Accessories

Reusable Training Stent

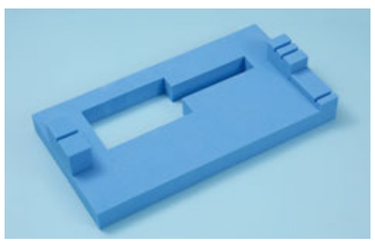


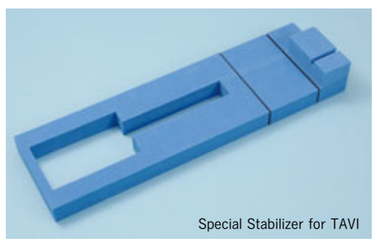
Used in Heart Coronary Model for PCI training. Deployed with a balloon catheter as for a real PCI procedure (not for human use) and easy to remove.

Camera Set

A compact camera with a flexible arm that can provide clear images from various angles.
Via the flexible arm, observation from various angles can be performed. Simple connection with a camera and monitor, a clear image can be attained.

Special Stabilizer





Special Stabilizer for TAVI

Special Stabilizer to stabilize the tank and sheath to make catheter manipulation easier.

Portable Stabilizer

A portable sheath stabilizer easy to store in a small portable case.

Special Carrying Case

Special Carrying Case (large)

Large carrying case customized for HEARTROID.
Total Outer Size: 730 x 515 x 325mm
Capacity: 96 liters
Capable of containing the basic set and special table.

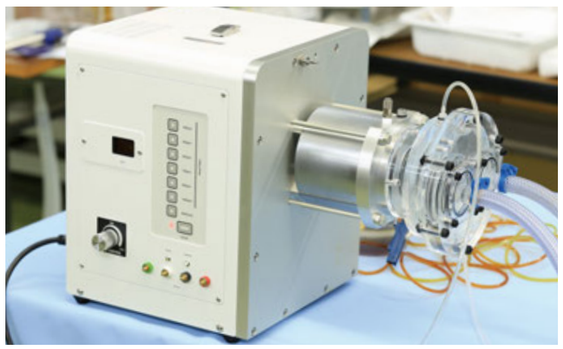
Special Carrying Case (small)

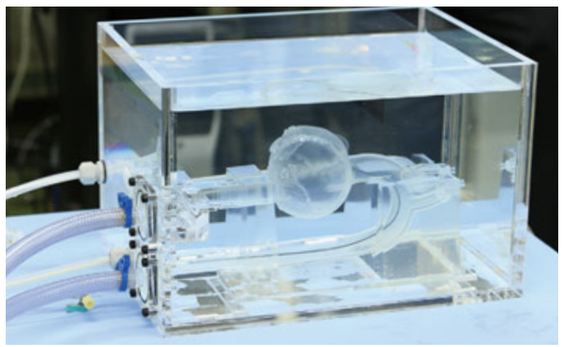
Small portable case customized for HEARTROID.
Total Outer Size: 540 x 360 x 250mm
Capacity: 40liters
Capable of containing the basic set.

Damage Protection Case

Total Outer Size: 712 x 500 x 337mm
Capable of containing the whole basic set.
boxCaseTrunk
Capable of containing the basic set.

HEARTROID for R & D





A high performance pump producing and controlling pulsatile flows and a water tank appropriate for various clinical scenarios and heart models are available. Please contact JMC for price and customization.

Product specifications can be customized and are subject to change without notice. Please contact JMC for details.

Compatibility List

Basic Set		Pulsatile Pump		Special Tank										Hoses	Sheath	Lubricant	Lesion parts	Carry case		Page
		Type-I	Type-II	Smart	TAVI	MV	TPVI	Wide for TEE	EP	Wide	EVT	RDN	NV	—	—	—	—	Large	Damage Protection	—
HEARTROID Model																				
Coronary	PCI Model	●		●										●	● 6Fr, 8Fr	●	● (Refer to p.8)	●	●	3 – 4
	CTO Model	●		●										●	● 6Fr, 8Fr	●	● (Refer to p.8)	●	●	5
	BIF Model	●		●										●	● 6Fr, 8Fr	●	● (Refer to p.8) BIF only	●	●	6
	CABG Model	●		●										●	● 6Fr, 8Fr	●	● (Refer to p.8)	●	●	7
	CAG Model	●		●										●	● 6Fr, 8Fr	●		●	●	7
Structure	TAVI Model		●		● Specific tank needed for each model									●	● 6Fr, 24Fr	●		●	●	9 – 12
	MV Model		●			●								●	● 24Fr	●		●		13
	TPVI Model	●	●				●							●	● 24Fr	●		●		14
	ASD / PFO Closure Model	●						●						●	● 24Fr	●		●		15
	LAA Closure Model	●						●						●	● 24Fr	●		●		16
EP	EP Model (Hydrogel series)	●							●					●	● 24Fr or16Fr			●	●	17
	EP Model (Silicon series)	●								●				●	● 24Fr	●		●	●	17
	Leadless Model	●								●				●	● 24Fr	●		●	●	20
Peripheral	EVT Model	●									●			●	● 8Fr × 2	●	● EVT only	●		21
	RDN Model	●										●		●	● 8Fr × 2	●		●		22
HF	Myocardial Biopsy Model	●								●				●	● 10Fr × 2	●		●	●	23
NV	NV Model	●											●	●	● 10Fr × 3	●	● NV only	●	●	25 – 26

-Designed and Developed by

Osaka University
Graduate School of Medicine

Department of Cardiovascular Medicine

Keita OKAYAMA, MD, PhD
Yasuhiro ICHIBORI, MD, PhD
Isamu MIZOTE, MD, PhD
Yasumasa TSUKAMOTO, MD, PhD
Masaki AWATA, MD
Hiroya MIZUNO, MD, PhD, FESC
Shinsuke NANTO, MD, PhD, FACC
Yasushi SAKATA, MD, PhD, FACC, FESC, FJCC

-Contact details for inquiries

JMC Corporation
Sumitomofudosan Shinyokohama Bldg. 1F,
2-5-5,Shinyokohama,Kohoku-ku,Yokohama-shi,Kanagawa,222-0033,Japan
Tel +81-45-477-5757　Fax +81-45-471-5270　Mail jmcltd@jmc-rp.co.jp

-Joint research and development

FYC FUYO CORPORATION

This product was developed through the national project “R&D for medical devices”,
supported by the Japan Agency for Medical Research and Development (AMED).

GOOD DESIGN

HEARTROID wins “The Good Design Awards 2020”
presented by The Chicago Athenaeum

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